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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,681	12/11/2001	Michael Anthony Klug	M-8577-3D US	4374

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EXAMINER

CURTIS, CRAIG

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,681

Applicant(s)

KLUG et al. *h*

Examiner

Craig Curtis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jun 6, 2003
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-41, 57, 63, and 64 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-41, 57, 63, and 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

I. Claim 57 is rejected under 35 U.S.C. 102(b) as being anticipated by Newswanger (5,191,449).

Newswanger discloses a method (see ABSTRACT, entire document) comprising the steps of selecting an elemental hologram (see Fig. 4);

generating a coherent light beam (from 32 in Fig. 4);

splitting the beam into an object beam and a reference beam (see Fig. 4: element 36);

rendering an image (see 30 in Fig. 4);

conditioning the object beam with the rendered image, the conditioning of the object beam including the step of passing the object beam through [read: through] a voxel-control lens (46), the voxel-control lens being capable of varying the size of at least one voxel (inherent) and being capable of making the rendered image as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material (in the same manner as that of the instant invention); and

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interfering the conditioned object beam with the reference beam at the selected elemental hologram. See Fig. 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36-41, 63, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Newswanger (5,191,449) in view of Newswanger (5,291,317).

With regard to claims 36-38, Newswanger ('449) discloses the invention as claimed--an apparatus and method for printing holographic stereograms, comprising, inter alia:

a light source that produces a coherent beam (Fig. 4, source 32);

a beam splitter (Fig. 4, 36) that splits the combined beam into an object beam and a reference beam;

a band-limited diffuser (44: band-limited nature being inherent; see text below), wherein said band-limited diffuser includes a deterministic phase pattern designed to diffuse light in at least one of a specific pattern and a specific direction (see 44 in Fig. 4);

a holographic recording material (50 in Fig. 4);

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an object beam unit (Fig. 4, 336, 34, 42, 48, 30, 46, 44, 54 inclusive) including a diffuser (44) for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram (see Fig. 4);

a masking plate (64) located in the path of the reference beam and proximate to the holographic recording material;

a voxel-control lens located in the path of the object beam and proximate to the holographic recording material (Fig. 4, 46), said voxel-control lens being capable of varying the size of at least one voxel and being capable of making the rendered image displayed by the object beam unit as seen from the viewpoint of an elemental hologram appear at a greater apparent distance relative to the holographic recording material (see Fig. 4);

wherein the object beam unit includes a SLM (30) for displaying the rendered image and the voxel-control lens has a focal length about equal to the distance between the voxel-control lens and the SLM (See Fig. 4)--EXCEPT FOR explicit teachings of the following claimed limitations:

a material holder (50) holding a holographic recording material capable of recording in color and having elemental holograms (see Fig. 4);

wherein said diffuser for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram is removable;

wherein said masking plate located in the path of the reference beam and proximate to the holographic recording material is removable;

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a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit (see col. 6, ll. 41-44);

wherein said removable masking plate has at least one positioning adjustment device (see Fig. 4);
and

wherein removable band-limited diffuser has at least one positioning adjustment device (Id.).

However, with regard to the lack of an explicit teaching by Newswanger of a material holder holding said holographic recording material capable of recording in color and having elemental holograms, it is noted as being inherent that said holographic recording material (50) is supported by a holder of some sort not shown in the figures, as opposed to being suspended extra-physically in mid-air, such supporting of holographic recording material being so well-known in the art as not to require representation in said figures.

With regard to said diffuser for displaying a rendered image and for conditioning the object beam with the rendered image to interfere with the reference beam at a chosen elemental hologram being both band-limited and removable, it is noted that, strictly speaking, said diffuser taught by Newswanger is inherently band-limited, inasmuch as said diffuser would not efficiently pass, for the sake of example, radiation in the infrared or ultraviolet bands of the electromagnetic spectrum; and with regard to the removability of said diffuser, it is noted as being notoriously old and well-known for optical elements of all types, including diffusers, to be removable from or positionable in optical systems; and as such, such teachings cannot be the basis of patentably distinguishing the instant invention over the prior art.

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It would have been obvious to one having ordinary skill in the holographic art at the time the invention was made to have modified the invention of Newswanger such that said diffuser be removable, such teaching being notoriously old and well-known in the holographic/optical system art, for at least the reason of allowing one to position said diffuser easily and variously within said system in order to achieve a desired diffusion effect.

With regard to the removability of said masking plate, it is asserted that it would have been obvious to one having ordinary skill in the holographic art at the time the invention was made to have modified the invention of Newswanger such that said masking plate be removable, such teaching being notoriously old and well-known in the holographic/optical system art, for at least the reason of allowing one to position said masking plate easily and variously within said system in order to achieve a desired masking effect.

With regard to claim 63, said band-limited diffuser is specifically designed for the wavelength of the light source (inherent).

With regard to claim 64, it is noted that each of the removable band-limited diffuser and the removable masking plate of Newswanger are located in respective positions such that the removable band-limited diffuser can be replaced with a second band-limited diffuser and the removable masking plate can be replaced with a second removable masking plate, wherein the second band-limited diffuser and the second removable masking plate allow recording at least one of a larger elemental hologram, a smaller elemental hologram and a differently shaped elemental hologram (see, e.g., col. 4, ll. 33-57).

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With regard to the lack of teaching by Newswanger of a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit, it is noted that Newswanger ('317) provide such a teaching. See computer 46 in Figs. 3-6; entire document.

It would have been obvious to one having ordinary skill in the holographic art to have modified the invention of Newswanger ('449) such that it further comprise a computer programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit, as taught by Newswanger ('449), for at least the purpose of controlling in a convenient manner the exposure of said holographic recording material.

Response to Arguments

3. Applicants' arguments filed 6 June 2003 have been fully considered but they are not persuasive. With regard to all but the remarks regarding the voxel-control lens provided below, Applicants are respectfully directed to the text of the above-recited rejections for rebuttal of the other arguments presented in the response filed 9 October 2002.

Applicants take exception with the Examiner's characterization of lens 46 of Newswanger as said voxel-control lens, asserting that this lens is not "within the meaning of the term as used by the Applicants" and that it is not proximate to said holographic recording material. The Examiner respectfully disagrees with each of these assertions.

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With regard to the allegation by Applicants that lens 46 of Newswanger is not a voxel-control lens, Applicants are reminded that while the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Thus, absent a showing by Applicants in the claims of a unique feature of a "voxel-control" lens that lens 46 of Newswanger lacks, the Examiner is justified in denominating said lens of Newswanger as a voxel-control lens, thereby interpreting broadly the adjective "voxel-control."

Applicants' argument with regard to the lack of a teaching by Newswanger ('449) wherein a computer is programmed to control the interference of the object beam and the reference beam and the delivery of the rendered image to the object beam unit has been rendered moot by the new grounds of rejection set forth hereinbefore.

Conclusion

4. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

5. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

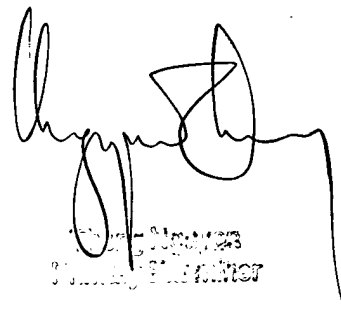
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date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (703) 305-0776. The facsimile phone number for Art Unit 2872 is (703) 308-7721.

Any inquiry of a general nature regarding the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



Craig H. Curtis
Group Art Unit 2872

Craig H. Curtis
Group Art Unit 2872
21 August 2003